

691020

Attachment H

COVER SHEET (PAGE 1 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

ANALYSIS OF SEQUENTIAL FALL FLOODING OF WETLAND AND RICE HABITAT IN  
SACRAMENTO VALLEY

Proposal Title: \_\_\_\_\_  
Applicant Name: DUCKS UNLIMITED, INC. WESTERN REGIONAL OFFICE  
Mailing Address: 3074 GOLD CANAL DRIVE RANCHO CORDOVA CA 95670  
Telephone: 916-852-2000  
Fax: 916-852-2200

Amount of funding requested: \$ 435,410 for 2 years

Indicate the Topic for which you are applying (check only one box). Note that this is an important decision: see page \_\_\_ of the Proposal Solicitation Package for more information.

- |   |   |
|---|---|
| <input type="checkbox"/> Fish Passage Assessment  | <input type="checkbox"/> Fish Passage Improvements    |
| <input type="checkbox"/> Floodplain and Habitat Restoration                               | <input type="checkbox"/> Gravel Restoration           |
| <input type="checkbox"/> Fish Harvest   | <input type="checkbox"/> Species Life History Studies |
| <input checked="" type="checkbox"/> Watershed Planning/Implementation                     | <input type="checkbox"/> Education                    |
| <input type="checkbox"/> Fish Screen Evaluations - Alternatives and Biological Priorities |   |

Indicate the geographic area of your proposal (check only one box):

- |   |   |
|---|---|
| <input type="checkbox"/> Sacramento River Mainstem              | <input type="checkbox"/> Sacramento Tributary: _____                |
| <input type="checkbox"/> Delta                                  | <input type="checkbox"/> East Side Delta Tributary: _____           |
| <input type="checkbox"/> Suisun Marsh and Bay                   | <input type="checkbox"/> San Joaquin Tributary: _____               |
| <input type="checkbox"/> San Joaquin River Mainstem             | <input checked="" type="checkbox"/> Other: <u>SACRAMENTO VALLEY</u> |
| <input type="checkbox"/> Landscape (entire Bay-Delta watershed) | <input type="checkbox"/> North Bay: _____                           |

Indicate the primary species which the proposal addresses (check no more than two boxes):

- |  |   |
|--|---|
| <input type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon | <input type="checkbox"/> Spring-run chinook salmon          |
| <input type="checkbox"/> Winter-run chinook salmon   | <input checked="" type="checkbox"/> Fall-run chinook salmon |
| <input type="checkbox"/> Late-fall run chinook salmon  | <input type="checkbox"/> Longfin smelt                      |
| <input type="checkbox"/> Delta smelt   | <input type="checkbox"/> Steelhead trout                    |
| <input type="checkbox"/> Splittail   | <input type="checkbox"/> Striped bass                       |
| <input type="checkbox"/> Green sturgeon  |   |
| <input checked="" type="checkbox"/> Migratory birds  |   |

COVER SHEET (PAGE 2 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Indicate the type of applicant (check only one box):

- |   |   |
|---|---|
| <input type="checkbox"/> State agency                               | <input type="checkbox"/> Federal agency |
| <input checked="" type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit     |
| <input type="checkbox"/> Local government/district                  | <input type="checkbox"/> Private party  |
| <input type="checkbox"/> University                                 | <input type="checkbox"/> Other: _____   |

Indicate the type of project (check only one box):

- |  |   |
|--|---|
| <input type="checkbox"/> Planning              | <input type="checkbox"/> Implementation |
| <input checked="" type="checkbox"/> Monitoring | <input type="checkbox"/> Education      |
| <input type="checkbox"/> Research              |   |

By signing below, the applicant declares the following:

- (1) the truthfulness of all representations in their proposal;
- (2) the individual signing the form is entitled to submit the application on behalf of the applicant (if applicant is an entity or organization); and
- (3) the person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section II.K) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.



(Signature of Applicant)

RONALD A. STROMSTAD  
DIRECTOR OF OPERATIONS

## II. Executive Summary

***Project Title:*** Analysis of Sequential Fall Flooding of Wetland and Rice Habitat in the Sacramento Valley

***Proposal Topic:*** Local Watershed Stewardship

***Applicant:*** Ducks Unlimited, Inc.

***Project Description and Primary Biological/Ecological Objectives:*** This project will analyze fall flooding patterns of seasonal wetlands and rice in the Sacramento Valley. Modeling will be performed to estimate area and distribution of shorebird and waterfowl populations under various hydrologic conditions. This project will consist of three phases: 1) analysis of fall flooding 1986-97 (based on single satellite scene each year); 2) analysis of seasonal variability in wetland/rice habitat (from August 1996 – March 1997); 3) based on flooding chronologies, modeling of potential shorebird and waterfowl population distributions across the Sacramento Valley, under dry, medium, and wet winter hydrologic conditions. This information will aid in management of wetlands and flooded rice which greatly impact migratory birds, and fall/winter-run salmon.

***Approach/Tasks/Schedule:*** This project will be completed by: acquiring and classifying Landsat Thematic Mapper satellite imagery and digitally recording the location and extent of fall and winter flooding. The project will begin in 1998 and will be completed by the end of 2000. Products will be digital maps of the Sacramento basins, tables and figures describing flood chronologies, and interactive GIS models of shorebird and waterfowl distributions based on hydrologic conditions.

***Justification for Project and Funding by CalFed:*** This project will reveal timing and extent of seasonal fall flooding by specific location and basin within the Sacramento Valley. These data will provide better management capabilities for waterbird habitat under various hydrologic years, as well as potentially reduce diversions where waterbird habitat needs are not high. This may have important implications for native fish species, especially during dry years.

***Budget Costs and Third Party Impacts:*** Total funding requested is for \$435,410. Partial cost break down includes (1) analysis of fall flooding (1986-1996): \$138,270; (2) analysis of flooding Aug 96 – March 97: \$119,200; (3) modeling of waterbird distributions under varying hydrologic patterns: \$150,980; (4) final products: \$26,960.

***Applicant Qualifications:*** Ducks Unlimited is a nationally recognized authority on wetlands and waterbird use. The Western Regional Office has full GIS capabilities and has mapped over 75 million acres of habitat in California, Alaska, the Pacific Northwest, and Canada in the last 10 years.

***Monitoring and Data Evaluation:*** This project is an evaluation project and accuracy of

the mapping will be assessed.

***Local Support/Coordination with other Programs/Compatibility with CalFed:*** Previous winter rice habitat mapping has been supported by Bureau of Reclamation, Central Valley Habitat Joint Venture, California Department of Fish and Game, EPA, U.S. Fish and Wildlife Service, NASA, and California Rice Industry Association. These data sets will be used with other analyzed images for the model development. The shorebird macro-habitat model will be conducted by Drs. Michael Reed and Chris Elphick at Tufts University.

### **III. Title Page**

***Title of Project:***

Analysis of Sequential Fall Flooding of Wetland and Rice Habitat in the Sacramento Valley

***Name of Applicant:***

Ducks Unlimited, Inc.  
Western Regional Office  
3074 Gold Canal Drive  
Rancho Cordova, California 95670-6116  
Tel (916) 852-2000 Fax (916) 852-2200 email: wroducks@gte.net

Principal Investigators: Robb Macleod, GIS Manager  
Frederic Reid, Ph.D., Director of Conservation Planning

***Type of Organization and Tax Status:*** Non Profit (501-C3)

***Tax Identification Number:*** 13-5643799

***Participants:*** Ducks Unlimited and Tufts University

## **IV. Project Description**

### ***Project Description and Approach***

Drastic reductions in the natural wetlands of the Central Valley have stimulated efforts to restore seasonal wetlands and enhance agricultural land to provide habitat for waterfowl and other wildlife. The winter flooding of rice fields and other crop types has played an increasingly important role in providing supplementary winter habitat. Resource agencies, conservation organizations, local governments, as well as agricultural interests require accurate, up-to-date information on the location and extent of the seasonally flooded habitat for use in planning, protecting and mitigating land use actions and the impacts to wildlife. However, the highly variable nature of the seasonally flooded habitat makes it difficult to quantify and monitor. Flooded habitat changes in response to precipitation, management decisions, availability of water, and agricultural markets. Differences are observed from one year to another as well as from week to week within a single fall/winter season. In order to understand the impact of these diversions on the Delta and other waterbodies within the Sacramento watershed, information is needed on quantity and location of water that is diverted. The purpose of this project is to use satellite imagery to map and analyze changes in the location and extent of fall flooding in the Sacramento Valley and northern Delta. This project will consist of 3 phases:

1. Analysis of Fall Flooding 1986-1997 – One satellite image collected during the early fall (Oct-Nov) of each year from 1986 to 1997 will be acquired and classified to identify the location and extent of fall flooding. This period will be indicative of diverted water, prior to winter rain period December – February. The resulting digital maps will be used for change detection to identify general trends and changes in the location and extent of seasonally flooded habitat in the Sacramento Valley and northern Delta from 1986-1997.
2. Analysis of Seasonal Variability in Availability of Wetland Habitat (August 1996 – March 1997) - Thirteen satellite images collected approximately every two weeks from August 1996 to March 1997 will be acquired and processed to assess changes in the availability of flooded habitat over the course of one fall/winter season. In addition, precipitation data from the fall/winter of 1996-97 will be compiled and analyzed in conjunction with the classified 1996-97 winter imagery to assess the role of natural vs. managed flooding in the availability and location of seasonally flooded habitat.
3. Combining depletion modeling to predict how changes in food supply are associated with different management methods with hydrologic patterns will reveal strategies to maximize waterbird (waterfowl and shorebird) habitat yet minimize diversions where waterbird use is low.

For each phase the winter satellite imagery will be classified to identify flooded vs. non-flooded land cover. A satellite image from each corresponding summer will also be

classified to produce a map of general land cover classes (rice, other agriculture, wetlands, ...). The summer land cover map will then be combined in a GIS overlay procedure with each of the classified winter images to apply land cover / habitat labels to each flooded area based on the pre-flooding land cover class. This will provide for the separation of classes such as seasonally flooded wetlands from seasonally flooded agricultural lands and will therefore provide a more accurate description of the type and quality of habitat that is available. Change detection will then be performed with each sequential pair of classified images to determine the extent of change in winter flooded habitat from year to year (Phase 1) and within one year (Phase 2). As part of Phase 2, daily precipitation totals will be compiled and compared with the changes in flooded habitat to evaluate the role of natural vs. managed flooding in the availability of seasonally flooded habitat. Waterbird distribution information will be modeled against hydrologic patterns and compared in sensitivity analyses to judge model behavior.

### ***Proposed Scope of Work***

#### **Phase 1: Analysis of Fall Flooding 1986-1997**

- a) Data Acquisition – Eleven Landsat Thematic Mapper satellite images from late October/November 1986 to 1997 will be acquired for the project. This date was selected in order to reduce the effect of flooding from winter rainfall and thus highlight flooding due to fall water diversions. Landsat Thematic Mapper satellite imagery is collected approximately every 16 days and has a pixel resolution of 30 meters squared. Data is collected from 7 different bands of the spectrum, including 3 near-infrared bands which are particularly sensitive to water and soil moisture. Table 1 lists the dates of imagery that will be acquired.

Table 1. Phase 1 Imagery

Nov. 16, 1986	Oct 18, 1987	Oct 20, 1988	Nov 16, 1989
Oct 26, 1990	Nov 22, 1991	Oct 15, 1992	Nov 19, 1993
Nov 22, 1994	Nov 24, 1995	Nov 11, 1996	Nov 18, 1997

- b) Image Processing - All images will be loaded, checked for data quality and registration, and subset to the project area. The three NIR bands will then be subset and classified using an unsupervised classification approach to produce a map of flooded vs. non-flooded land cover for each of the 12 dates of fall imagery.
- c) Change Detection and Analysis - After the individual fall images have been classified, change detection will be performed to determine the location and extent of change in flooded habitat between each sequential pair of classified images. The change in acreage will be tallied and reported for each basin. In addition, hardcopy maps and an ArcView GIS project will be produced to illustrate the changes in fall flooding patterns from 1986 to 1997.

Phase 2: Analysis of Seasonal Variability in Availability of Wetland Habitat (Oct 1996 – March 1997)

a) Data Acquisition - Ten Landsat Thematic Mapper satellite images and 2 RADARSAT radar images from August 1996 to March 1997 will be acquired for the project. Radar can penetrate cloud-cover and therefore will be used to fill the gaps when cloud-free Thematic Mapper imagery was not available. Radar is also extremely sensitive to the presence of water. Table 2 lists the imagery that will be acquired for the project.

Table 2. 1996/1997 Imagery to be Acquired

<u>Date</u>	<u>Satellite Sensor</u>
August 7, 1996	Thematic Mapper (TM)
September 8, 1996	TM
October 10, 1996	TM
October 26, 1996	TM
November 11, 1996	TM
November 27, 1996	TM
December 13, 1996	TM
January 14, 1997	TM
January 28, 1997	RADARSAT
February 8, 1997	RADARSAT
February 15, 1997	TM
March 3, 1997	TM

b) Image Processing - The fall and winter TM images will be processed as described above in Phase 1 to produce a map of flooded vs. non-flooded land cover for each date of imagery. The radar images, which consist of a single band, will be filtered to reduce the speckle that is inherent in radar data and then level-sliced to identify flooded vs. non-flooded land cover. In addition, the August 1996 TM image will be classified into 8-10 broad classes representing pre-flood land cover. Once the summer image has been classified, it will be overlaid with the winter flooding images to apply a land cover label to each flooded area in order to separate seasonally flooded wetlands from seasonally flooded agriculture or other flooded land covers.

c) Change Detection and Analysis - Change detection will be performed to determine the location and extent of change in flooded habitat between each sequential pair of classified images. The change in acreage will be tallied and reported for each basin. In addition, hardcopy maps and an ArcView GIS project will be produced to illustrate the changes over the course of the season. The result will be a picture of the within-season variability of flooded habitat for the 1996-1997 winter season.

d) Precipitation Analysis - Daily precipitation data from the winter of 1996-1997 will be



compiled and compared with the changes in flooded habitat to evaluate the role of rainfall vs. diverted water in the availability of seasonally flooded habitat.

#### Phase 3: Waterfowl and Shorebird Distribution Modeling

Modeling of waterfowl and shorebird populations to energetic data from habitat and hydrologic patterns under various water years. A landscape spatial model will be the result.

#### Phase 4: Final Products

A number of final products will be prepared to describe and illustrate the results of the Phase 1-3 analyses. The final products will include the following:

- Digital GIS datalayer of flooded vs. non-flooded land cover for each of the individual images classified for Phase 1 and Phase 2.
- A multimedia presentation illustrating the results of the change detection performed in Phase 1 and Phase 2.
- Acreage statistics and hardcopy maps illustrating the changes.
- Models for the relationship of waterbird abundance and hydrologic features.
- A final report describing the procedures used and the results of the analysis.

Written quarterly reports on project progress and expenses to date will be provided. These reports will consist of a brief description of the project status, a list of completed task, and an assessment of progress in meeting the scheduled deadlines.

#### ***Location and/or geographic boundaries of project***

This project will focus on the Sacramento Valley, the major rice producing area of the Central Valley. Specifically, the project area will be defined by the 300-foot contour interval to the east and west and will extend from Chico in the north to the upper reaches of the Sacramento/San Joaquin River Delta in the south. In all, the project area will encompass over two million acres and will include all or portions of six of the Central Valley Habitat Joint Venture basins. (See attached figure.)

#### ***Expected benefits***

There is concern that diversions of fall water may impact native fisheries runs. In response to that concern, this project will provide data on the extent and sources of fall flooding in agriculture and seasonal wetlands in the Sacramento Valley. Avian species that use historic floodplain habitat include a variety of waterbirds, numbering over sixty species. Species of major use include: Northern pintail, white-fronted goose, sandhill crane, long-billed dowitcher, dunlin, and western sandpiper. The habitats created by this flooding include flooded rice and seasonal and semi-permanent wetlands. The benefits will be provided in terms of a better understanding of where and when such fall flooding occurs.

### ***Background and Biological/Technical Justification***

Satellite imagery provides a relative inexpensive means for inventorying seasonally flooded habitat and monitoring changes in it over time. Several past Ducks Unlimited projects have involved mapping seasonally flooded habitat using one date of winter imagery. While useful in a general sense, these past mapping efforts need to be analyzed within a broader context to determine long-term trends and changes in the availability of seasonally flooded habitat. Furthermore, these single-date projects have been unable to take into account the within-season variability in habitat availability caused by changes in precipitation, regional farming trends, availability of water, and other factors. Thus, it is difficult to get a true picture of the quantity and quality of habitat that is available for waterfowl and other wetland-dependent wildlife. This project proposes to apply the methods used in past projects to imagery collected from multiple years and multiple dates within a single year for a more detailed analysis of seasonally flooded habitat. The results of this project will provide for a thorough analysis of variability in the availability and quality of winter flooded habitat. With this information, resource managers can identify trends in the availability of seasonally flooded habitat and identify areas of inadequate habitat that can be targeted for restoration and enhancement efforts.

### ***Monitoring and Data Evaluation***

This project will provide an evaluation of fall and winter flooding patterns in the Sacramento Valley as well as monitoring of potential waterbird habitat.

### ***Implementability***

This project will have substantial outreach use. All software licenses are in force. DU has an excellent track record in timely completion of projects. Useable satellite scenes are documented.

## V. Costs and Schedules to Implement Proposed Project

### Budget Costs

#### Phase 1: Analysis of Flooding 1986-1996

Project Phase and Tasks	Direct Labor Days	Direct Salary & Benefits	Overhead Labor	Service Contracts	Material & Acquisition Contracts	Misc & other Direct Costs	Total Cost
1a) Data Acquisition	10	\$2,210			\$77,580		\$79,790
1b) Image Classification	185	\$40,885			\$6,475	\$1,000	\$48,360
1c) Change Detection and Analysis	20	\$4,420			\$700		\$5,120
<b>Subtotal</b>			\$5,000				\$138,270

#### Phase 2: Analysis of Flooding Aug 1996 - March 1997

Project Phase and Tasks	Direct Labor Days	Direct Salary & Benefits	Overhead Labor	Service Contracts	Material & Acquisition Contracts	Misc & other Direct Costs	Total Cost
2a) Data Acquisition	10	\$2,210			\$55,500		\$57,710
2b) Image Classification	160	\$39,150			\$5,600	\$1,000	\$45,750
2c) Change Detection and Analysis	20	\$4,420			\$700	\$500	\$5,620
2d) Compile Precipitation Data	10	\$2,210			\$350		\$2,560
2e) Precipitation Analysis	10	\$2,210			\$350		\$2,560
<b>Subtotal</b>			\$5,000				\$119,200

#### Phase 3: Modeling of Waterbird Distribution Under Varying Hydrologic Patterns

Project Phase and Tasks	Direct Labor Days	Direct Salary & Benefits	Overhead Labor	Service Contracts	Material & Acquisition Contracts	Misc & other Direct Costs	Total Cost
3a) Shorebird Pop. Modeling	220	\$45,200			\$14,200	\$3,000	\$62,400
3b) Waterfowl Pop. Modeling	220	\$45,200			\$13,900	\$3,500	\$62,600
3c) Develop Multimedia Presentation	40	\$12,630			\$3,050		\$15,680
<b>Subtotal</b>			\$10,300				\$150,980

#### Phase 3: Final Products

Project Phase and Tasks	Direct Labor Days	Direct Salary & Benefits	Overhead Labor	Service Contracts	Material & Acquisition Contracts	Misc & other Direct Costs	Total Cost
4a) Prepare imagery for delivery	10	\$2,210			\$350		\$2,560
4b) Develop Multimedia Presentation	30	\$6,630			\$3,050		\$9,680
4c) Produce Report for Publication	20	\$6,400			\$6,800		\$13,200
<b>Subtotal</b>			\$1,520				\$26,960

**TOTAL \$435,410**

***Schedule Milestones:***

	<b>Start Date</b>	<b>Completion Date</b>
Data Acquisition	Jan-99	Mar-99
Phase 1: Analysis of Fall Flooding 1986-1997	Mar-99	Dec-99
Phase 2: Analysis of Flooding Oct 1996 - Mar 1997	Jan-00	Aug-00
Phase 3: Waterbird and Shorebird Pop. Modeling	Jan-99	Mar-00
Final Products	Sep-00	Dec-00

***Third Party Impacts***

Acquisition of new hydrologic knowledge will only benefit the potential for management of all species.

## **VI: Applicant Qualifications**

Ducks Unlimited, Inc. has been involved in GIS/Remote Sensing projects for over 10 years. Initially, these efforts concentrated on using satellite imagery to inventory and monitor waterfowl habitat. Notably, DU developed sophisticated software to inventory and compile wetland acreage statistics for the Prairie Potholes region using over 30 Landsat Thematic Mapper scenes. More recently, DU has directed the mapping of over 40 million acres of landcover in Alaska as well as mapping the whole Central Valley of California using a combination of summer and winter satellite imagery. Currently, DU is continuing to inventory landcover throughout the United States and is working in cooperation with other agencies to develop GIS databases and models for use in identifying and prioritizing potential wetland restoration and enhancement sites.

Currently, DU has seven full time GIS/Remote Sensing Analysts and one GIS intern on staff with a wide range of skills and extensive project experience. This experience includes all aspects of data acquisition, field sampling, GIS database design, image processing, GIS modeling, and programming. To support their work, the DU GIS section is equipped with state-of-the-art hardware and software, including 5 NT workstations, 2 SUN UNIX workstations, a large-scale inkjet plotter, a full-size digitizing tablet, and writable CD-ROM drives. Software includes ARC/INFO and ArcView GIS software, ERDAS IMAGINE image processing software, Sybase SQL Anywhere database software, and Visual Basic programming software. These resources will be available as needed for the project.

The staffing for this project will consist of Director of Conservation Planning, GIS Manager, Project Manager/Analyst, Remote Sensing Analyst/Programmer, a GIS intern, and fourteen biological support staff. The Director of Conservation Planning will direct the biological support for the project. The GIS Manager will oversee the contract and administrative aspects of the project, and will provide oversight for the general project design and implementation. The Project Manager will be responsible for the specifics of the project design and for successful guidance of the project to completion. The Remote Sensing Analyst/Programmer and GIS intern will work under the direct supervision of the Project Manager.

Frederic Reid – Ph.D., Director of Conservation Planning. Dr. Reid has nearly 20 years experience with wetland and waterbird management, especially on migration and wintering areas. He has coordinated biological aspects of multiple GIS projects in Alaska and California for the past six years. He has published over 50 manuscripts on wetland related issues and he has extensive experience in the Central Valley system.

Robb Macleod - GIS Manager. Mr. Macleod oversees all the GIS personnel and projects in the DU Western Regional Office. He has over five years experience in GIS and Remote Sensing. Mr. Macleod has managed and completed six landcover projects in Alaska and California covering over 45 million acres. He has extensive field experience and has used numerous types of remotely sensed data, including: Landsat TM, SPOT XS, ERS-1

RADAR, ADAR digital airborne, and CIR aerial photography.

Ruth Spell - Project Manager. Ms. Spell has worked with DU on GIS and Remote Sensing projects for the past 5 years. Her experience includes land cover mapping of the Lower Columbia River basin, Willapa Bay, WA, and Grays Harbor, WA. She was the project manager and senior analyst on a project developed in joint participation with the California Resources Agency, California Department of Fish and Game, Wildlife Conservation Board, and US Bureau of Reclamation to develop a wetland and riparian inventory for the Central Valley of CA using satellite imagery. Most recently, she has been involved in the development of a Wetlands Restoration Site Suitability model using Visual Basic programming language and ArcView GIS software.

Jing Huang – Remote Sensing Analyst/Programmer. Mr. Huang has recently completed a Ph.D. in Forest Ecology from Oregon State University. His work there included in-depth remote sensing and GIS research and analysis as well as extensive programming experience in support of that work. Mr. Huang has over six years experience in the remote sensing and GIS field with extensive experience with spatial database design and landscape modeling. He will provide the primary programming expertise for the proposed project.

Michael Reed, Ph.D. – Asst. Professor, Tufts University. Dr. Reed has nearly 20 years experience with waterbirds and their habitats. He has over 50 published papers, extensive experience on western wetland complexes, and excellent quantitative skills.

Chris S. Elphick, Ph.D. – Post-Doc., Tufts University. Dr. Elphick has extensive experience in landscape-level analysis of bird distribution and computer modeling of population dynamics.

Mark Petrie, Ph.D. – Research Scientist, DU. Dr. Petrie is an accomplished researcher in waterfowl energetics and wetland ecology. He has modeled waterfowl distribution with habitat resource data and flooding regimes.

## **VII: Compliance with Standard Terms and Conditions**

DU has administered multiple government contracts with applicable compliance standards.

## BIDDER'S BOND

We DUCKS UNLIMITED, INC.

3074 Gold Canal Drive, Rancho Cordova, CA 95670-6116

, as PRINCIPAL, and

UNITED PACIFIC INSURANCE COMPANY

Suite 400, 5660 New Northside Drive, Atlanta, GA 30328

as SURETY, are held and firmly bound unto the State of California in the penal sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named submitted by said Principal to the State of California, acting by and through the Resources Agency, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, to the Secretary of the Resources Agency to which said bid was submitted, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

In no case shall the liability of the surety here under exceed the sum of \$ \_\_\_\_\_

### THE CONDITION OF THIS OBLIGATION IS SUCH,

That whereas the Principal has submitted the above-mentioned bid to the State of California, as aforesaid, for certain construction specifically described for

ANALYSIS OF SEQUENTIAL FALL FLOODING OF WETLAND AND RICE HABITAT IN SACTO

(copy here The exact description of work, including location, as it appears on the proposal)

NOW, THEREFORE, If the aforesaid Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files ~~two bonds with the Department, one to guarantee faithful performance and the other to guarantee payment for labor and materials~~ as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this 2ND day of JULY, 1998

DUCKS UNLIMITED, INC.

(Seal)

\*A Payment Bond with the Department to guarantee payment for Labor and Materials in the amount of 50% of the contract.

BY: \_\_\_\_\_

(Seal)

Principal

(Seal)

(Seal)

UNITED PACIFIC INSURANCE COMPANY

(Seal)

BY: \_\_\_\_\_

Surety

(Seal)

Alan J. Wormer, Attorney-In-Fact

(Seal)

Address Suite 400, 5660 New Northside Drive  
Atlanta, GA 30328

NOTE: Signatures of those executing for the surety must be properly acknowledged.

SURETY ACKNOWLEDGMENT


STATE OF TENNESSEE

COUNTY OF DAVIDSON

I, Bettye Jean Brown, a Notary Public in and for the  
county and state aforesaid, do hereby certify that Alan J. Wormer  
who as Attorney-In-Fact, signed the writing above, or hereto annexed,  
for UNITED PACIFIC INSURANCE COMPANY, a corporation, bearing date  
of 2nd day of July, 1998, has this day in my said county,  
before me, acknowledged the said writing to be the act and deed of said  
corporation.

Given under my hand this 30th day of June, 1998.

My Commission Expires 9/18/99

  
Bettye Jean Brown Notary Public



**RELiance SURETY COMPANY  
UNITED PACIFIC INSURANCE COMPANY**

**RELiance INSURANCE COMPANY  
RELiance NATIONAL INDEMNITY COMPANY**

ADMINISTRATIVE OFFICE, PHILADELPHIA, PENNSYLVANIA

**POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENTS, that RELIANCE SURETY COMPANY is a corporation duly organized under the laws of the State of Delaware, and that RELIANCE INSURANCE COMPANY and UNITED PACIFIC INSURANCE COMPANY, are corporations duly organized under the laws of the Commonwealth of Pennsylvania and that RELIANCE NATIONAL INDEMNITY COMPANY is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called "the Companies") and that the Companies by virtue of signature and seals do hereby make, constitute and appoint Julie Holland, David E. Armstrong, Alan J. Wormer, Martha Fish, Bettye J. Brown, Richard M. Miller, Jr., of Nashville, Tennessee their true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver for and on their behalf, and as their act and deed any and all bonds and undertakings of suretyship and to bind the Companies thereby as fully and to the same extent as if such bonds and undertakings and other writings obligatory in the nature thereof were signed by an Executive Officer of the Companies and sealed and attested by one other of such officers, and hereby ratifies and confirms all that their said Attorney(s)-in-Fact may do in pursuance hereof.

This Power of Attorney is granted under and by the authority of Article VII of the By-Laws of RELIANCE SURETY COMPANY, RELIANCE INSURANCE COMPANY, UNITED PACIFIC INSURANCE COMPANY, and RELIANCE NATIONAL INDEMNITY COMPANY which provisions are now in full force and effect, reading as follows:

ARTICLE VII - EXECUTION OF BONDS AND UNDERTAKINGS

1. The Board of Directors, the President, the Chairman of the Board, any Senior Vice President, any Vice President or Assistant Vice President or other officer designated by the Board of Directors shall have power and authority to (a) appoint Attorney(s)-in-Fact and to authorize them to execute on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof, and (b) to remove any such Attorney(s)-in-Fact at any time and revoke the power and authority given to them.

2. Attorney(s)-in-Fact shall have power and authority, subject to the terms and limitations of the Power of Attorney issued to them, to execute deliver on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof. The corporate seal is not necessary for the validity of any bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof.

3. Attorney(s)-in-Fact shall have power and authority to execute affidavits required to be attached to bonds, recognizances, contracts of indemnity or other conditional or obligatory undertakings and they shall also have power and authority to certify the financial statement of the Company and to copies of the By-Laws of the Company or any article or section thereof.

This Power of Attorney is signed and sealed by facsimile under and by authority of the following resolution adopted by the Executive and Finance Committees of the Boards of Directors of Reliance Insurance Company, United Pacific Insurance Company and Reliance National Indemnity Company by Unanimous Consent dated as of February 28, 1994 and by the Executive and Finance Committee of the Board of Directors of Reliance Surety Company by Unanimous Consent dated as of March 31, 1994.

"Resolved that the signatures of such directors and officers and the seal of the Company may be affixed to any such Power of Attorney or any certificates relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be valid and binding upon the Company and any such Power as executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the Company, in the future with respect to any bond or undertaking to which it is attached."

IN WITNESS WHEREOF, the Companies have caused these presents to be signed and their corporate seals to be hereto affixed, this April 30, 1998.



RELiance SURETY COMPANY  
RELiance INSURANCE COMPANY  
UNITED PACIFIC INSURANCE COMPANY  
RELiance NATIONAL INDEMNITY COMPANY

*David T. Akers*

STATE OF Pennsylvania  
COUNTY OF Philadelphia

} ss.

On this, April 30, 1998, before me, Valencia Wortham, personally appeared David T. Akers, who acknowledged himself to be the Senior Vice President of the Reliance Surety Company, and the Vice President of Reliance Insurance Company, United Pacific Insurance Company, and Reliance National Indemnity Company and that as such, being authorized to do so, executed the foregoing instrument for the purpose therein contained by signing the name of the corporation by himself as its duly authorized officer.

In witness whereof, I hereunto set my hand and official seal.

Official Seal  
Valencia Wortham, Notary Public  
Philadelphia, Philadelphia County  
My Commission Expires Nov. 18, 2000



*Valencia Wortham*

Notary Public in and for the State of Pennsylvania  
Residing at Philadelphia

I, Anita Zippert, Secretary of RELIANCE SURETY COMPANY, RELIANCE INSURANCE COMPANY, UNITED PACIFIC INSURANCE COMPANY, and RELIANCE NATIONAL INDEMNITY COMPANY do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 2nd day of July, 1998.

*Anita Zippert*

Secretary



Item 11

Agreement No. \_\_\_\_\_

Exhibit \_\_\_\_\_

**NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY  
BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS**

STATE OF CALIFORNIA )

COUNTY OF Sacramento )

)ss

Holly Andree, being first duly sworn, deposes and  
(name)

Says that he or she is Director, State and Federal Coordination of  
(position title)

Ducks Unlimited, Inc.

(the bidder)

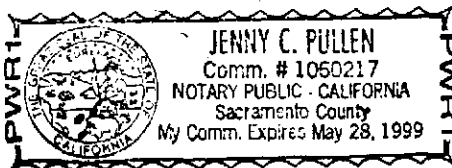
the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: 7/25/97

By

Holly Andree

(person signing for bidder)



(Notarial Seal)

Subscribed and sworn to before me on

7/25/97

Jenny C Pullen  
(Notary Public)

State of California

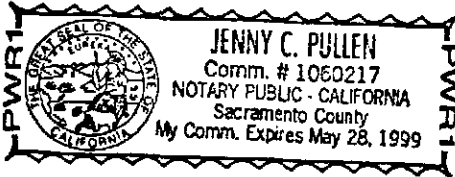
County of Sacramento

On 7/25/97 before me, Jenny C. Pullen, Notary Public  
(DATE) (NAME/TITLE OF OFFICER-i.e. "JANE DOE, NOTARY PUBLIC")

personally appeared Nelly Hopkins Andres  
(NAME(S) OF SIGNER(S))

☒ personally known to me -OR- ☐

proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.



Witness my hand and official seal.

(SEAL)

Jenny C. Pullen  
(SIGNATURE OF NOTARY)

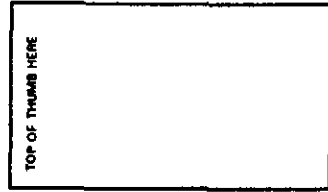
#### ATTENTION NOTARY

The information requested below and in the column to the right is **OPTIONAL**. Recording of this document is not required by law and is also optional. It could, however, prevent fraudulent attachment of this certificate to any unauthorized document.

THIS CERTIFICATE  
MUST BE ATTACHED  
TO THE DOCUMENT  
DESCRIBED AT RIGHT:

Title or Type of Document Noncollusion Affidavit  
Number of Pages 1 Date of Document 7/25/97  
Signer(s) Other Than Named Above \_\_\_\_\_

RIGHT THUMBPRINT (Optional)



CAPACITY CLAIMED BY SIGNER(S)

☐ INDIVIDUAL(S)

☐ CORPORATE \_\_\_\_\_

OFFICER(S) \_\_\_\_\_

(TITLE)

☐ PARTNER(S) ☐ LIMITED

☐ GENERAL

☐ ATTORNEY IN FACT

☐ TRUSTEE(S)

☐ GUARDIAN/CONSERVATOR

☐ OTHER: \_\_\_\_\_

SIGNER IS REPRESENTING:

(Name of Person(s) or Entity(ies))

RIGHT THUMBPRINT (Optional)



CAPACITY CLAIMED BY SIGNER(S)

☐ INDIVIDUAL(S)

☐ CORPORATE \_\_\_\_\_

OFFICER(S) \_\_\_\_\_

(TITLE)

☐ PARTNER(S) ☐ LIMITED

☐ GENERAL

☐ ATTORNEY IN FACT

☐ TRUSTEE(S)

☐ GUARDIAN/CONSERVATOR

☐ OTHER: \_\_\_\_\_

SIGNER IS REPRESENTING:

(Name of Person(s) or Entity(ies))



# Certificate of Incorporation of DUCKS UNLIMITED, INC.

WE, THE UNDERSIGNED, being all of full age and citizens of the United States and a majority of whom are citizens and residents of the District of Columbia, desiring to form a membership corporation pursuant to and in conformity with Chapter Five of Title Five of the Code of Laws of the District of Columbia, DO HEREBY CERTIFY:

FIRST: The name of the corporation shall be:

**DUCKS UNLIMITED, INC.**

SECOND: The corporation shall have perpetual existence.

THIRD: The particular business and objects of the corporation are:

To restore and perpetuate wild ducks and other wild waterfowl on the North American continent; to promote, carry on, conduct, and foster scientific research, education, training, and publication in the ornithological sciences; to establish departments of research and scientific study with particular reference to the enhancement of knowledge concerning the waterfowl of the North American continent; to establish, promote, assist, contribute to, or otherwise encourage the study of conservation, restoration, and management of wild waterfowl and its habitat; and in connection therewith, to grant scholarships, prizes and rewards;

To maintain sanctuaries for wild life, and to take, receive, hold, and convey real and personal estate necessary for the purposes of the corporation as stated in this certificate, and other real and personal property the income from which shall be applied to the purposes of the corporation.

In pursuance of, and not in limitation of the general powers conferred by law, and the objects and purposes herein set forth, it is expressly provided that this corporation shall have the following powers:

To do all such acts as are necessary or convenient to attain the objects and purposes herein set forth, to the same extent and as fully as any natural person could or might do, and as are not forbidden by law or by this Certificate of Incorporation or by the By-Laws of this corporation;

To take and hold by bequest, devise, gift, purchase, or lease, either absolutely or in trust, for any of its purposes, any property real or personal, without limitation as to amount of value, except such limitation, if any, as may be imposed by law; to transfer and convey the same, and to invest and re-invest the principal and income thereof, and to deal with and expend the principal and income of the corporation in such manner as in the judgment of the Trustees will best promote its objects; and in order properly to prosecute the objects and purposes as above set forth, the corporation will have full power and authority to purchase, lease, and otherwise acquire, hold, mortgage, convey and otherwise dispose of all kinds of property, both real and personal, both in the District of Columbia, and in any or all of the states of the United States, the territories or colonies of the United States, Alaska, the Dominion of Canada, Newfoundland, Mexico, the Central American countries, and other foreign countries, and colonies or dependencies thereof, and generally to perform all acts which may be deemed necessary for the proper and successful prosecution of the objects and purposes for which this corporation is created.

To have offices and promote and carry on its objects and purposes, within or without the District of Columbia, and in all the states, territories or foreign possessions of the United States, and in foreign countries.

To have all powers that may be conferred upon corporations formed under Chapter Five of Title Five of the Code of Laws of the District of Columbia.

The corporation shall be non-political, shall not promote the candidacy of any person seeking public office; and shall not by its activities, or any substantial part thereof, attempt to influence legislation by propaganda or otherwise.

FOURTH: The corporation shall be without capital stock. All property, real and personal, which the corporation shall receive shall be used exclusively for educational and scientific purposes, including the

restoration and perpetuation of wild ducks and other wild waterfowl on the North American continent; and no part of the income from the same shall inure to the benefit of any private shareholder or individual; provided, however, that reasonable compensation may be paid to an officer, member, or employee for services actually rendered the corporation.

FIFTH: The property of the officers, trustees and members of this corporation shall not be subject to or chargeable with the payment of corporate debts or obligations to any extent whatsoever.

SIXTH: The Board of Trustees shall have the power to make, alter, change, and amend by-laws for the government of the corporation and for the admission and withdrawal of members thereof.

SEVENTH: The meetings of the members and of the Trustees of this corporation may be held in the District of Columbia, or elsewhere within or without the confines of the United States or its possessions.

EIGHTH: The number of Trustees of the first Board of Trustees of this Corporation shall be FIVE, with power to change or increase and add to their number in accordance with provisions of the By-Laws.

The Board of Trustees shall have the power to appoint from their own members an Executive Committee consisting of all of the officers of the corporation including all vice presidents, all living past presidents and such other persons as may be designated by the Board of Trustees, five of whom, or such other number as may be specified by the By-Laws, shall constitute a quorum, who, when the Board of Trustees is not in session, shall have and shall exercise all the powers of the Board of Trustees, unless otherwise provided in the corporation's By-Laws. The Board of Trustees shall elect at its first meeting from its own members a President, and shall appoint a Treasurer and a Secretary and such other officers as may be provided for by the By-Laws, who need not be members of the Board. The Board of Trustees shall at such meeting select from their number, one-fifth of the number thereof to serve for one year, one-fifth to serve for two years, one-fifth to serve for three years, one-fifth to serve for four years, one-fifth to serve for five years; and each subsequent election of Trustees shall be for a period of one year or until their successors are duly elected and qualify. Vacancies occurring by death, resignation, or otherwise shall be filled by the remaining Trustees in such manner as the By-Laws shall prescribe and the persons so elected shall thereupon become Trustees.

NINTH: The names and post-office addresses of the Trustees until the first meeting are:

Arthur M. Bartley  
500 Fifth Avenue, New York, N.Y.  
Dr. John A. Hartwell  
2 East 103rd Street, New York, N.Y.  
Newbold L. Herrick  
25 Cedar Street, New York, N.Y.  
John C. Huntington  
500 Fifth Avenue, New York, N.Y.  
Wayne Johnson  
50 Broadway, New York, N.Y.

TENTH: The Registered Office of this corporation in the District of Columbia shall be at 918-16th Street, N.W., in care of CT Corporation System, the corporation's Registered Agent, Washington, D.C.

WITNESS our hands and seals this 29th day of January One Thousand Nine Hundred and Thirty-Seven.

CHRISTABEL E. HILL

(Witness)

DISTRICT OF COLUMBIA: ss:

ERNEST O. PALAND (SEAL)

WINSTON E. HOBBS (SEAL)

JOSEPH V. McBRIDE (SEAL)

I, CHRISTABEL E. HILL, a Notary Public in and for the District of Columbia, do hereby certify that ERNEST O. PALAND, WINSTON E. HOBBS, and JOSEPH V. McBRIDE, parties to a certificate of incorporation bearing date of January 29th, 1937, and hereto annexed, personally appeared before me in said District, the said ERNEST O. PALAND, WINSTON E. HOBBS and JOSEPH V. McBRIDE being personally known to me as the persons who executed the said certificate of incorporation and acknowledged the same to be their act and deed.

GIVEN under my hand and seal this 29th day of January, 1937.

CHRISTABEL E. HILL

Notary Public

DISTRICT OF COLUMBIA

My Commission Expires July 15, 1940

CHRISTABEL E. HILL

Notary Public

## NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) FMC

COMPANY NAME

Ducks Unlimited, Inc.

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

## CERTIFICATION

*I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.*

OFFICIAL'S NAME

James L. Ware

DATE EXECUTED

12/18/95

EXECUTED IN THE COUNTY OF

Shelby In

PROSPECTIVE CONTRACTOR'S SIGNATURE

Senior Group Manager

PROSPECTIVE CONTRACTOR'S TITLE

Ducks Unlimited, Inc.

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

## **PERSONNEL POLICIES AND PRACTICES**

### **EQUAL EMPLOYMENT OPPORTUNITY**

#### **Statement of Policy**

At Ducks Unlimited, Inc. it is our policy to recruit and hire employees without regard to or discrimination because of age, race, creed, color, national origin, sex, handicap or veteran status. This policy of nondiscrimination applies to all phases of employee relations – hiring, compensation, performance rating, promotion, transfer and other personnel matters.

Our employment objective is to select individuals who meet the organization's high standards of character, education and occupational qualifications; who can carry out the organization's work competently; who have capacity for growth; and, who will become an active part of our organization.

We know that our strength and future growth depend directly upon the contribution made by each person within our organization. Productivity and efficiency result from real job satisfaction and from the opportunity each person has for his or her individual self-development. Our employment policy is designed to:

- Place each employee, insofar as practicable, in a position which best suits the individual's natural and acquired aptitudes and skills.
- Offer each employee opportunity for self-development and advancement through training and on-the-job experience.
- Accord fair and equitable treatment to every employee at all times.
- Recognize the importance of the work of each employee to the overall success of the organization.

## **SEXUAL HARASSMENT**

### **Statement of Policy**

Ducks Unlimited, Inc. maintains a strict policy against sexual harassment. **Simply put, sexual harassment will not be tolerated on the part of any employee.** All employees are responsible for assuring that the workplace is free from sexual harassment. Sexual harassment is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature, where:

- Submission to the advances is made either explicitly or implicitly a term or condition of employment.
- Submission to or rejection of the advances is used as the basis for making employment decisions.
- Such conduct interferes with an individual's work performance or creates an intimidating, hostile or offensive working environment.

All employees should avoid any action or conduct that might be viewed as sexual harassment. Approval of, participation in, or acquiescence in conduct constituting sexual harassment will be considered a violation of this policy. If any employee believes that he or she has been subject to sexual harassment at work by anyone, including supervisors, co-workers or visitors, he or she should report this immediately to his or her immediate supervisor or Human Resources. Sexual harassment complaints will be handled with as much confidentiality as possible. There will be no retaliation against any employee who reports a claim of sexual harassment or against any employee who is a witness to the harassment. An immediate investigation will be conducted in an attempt to determine all the facts concerning the alleged harassment. In making this investigation, every effort will be made to be fair to all parties involved. If it is determined that sexual harassment has occurred, corrective action will be taken, up to and including reprimand, discharge, or other appropriate action.



If it is determined that no sexual harassment has occurred, or there is not sufficient evidence to conclude that harassment has occurred, this determination will be communicated to the employee who filed the complaint.

## **DRUG FREE WORKPLACE PROGRAM**

### **Statement of Policy**

Because substance abuse poses a serious threat to our employees, their families and to the entire organization, Ducks Unlimited has established this policy in an effort to promote and maintain a drug-free work environment.

The ultimate goal of this policy, however, is to balance respect for individual privacy with the organization's need to maintain a safe, productive, drug-free work environment for all employees; maintain safety and security at DU's community-based events, as well as at the facilities and properties in the communities where we are located; and, provide a quality of service to the organization's members, as well as non-members and visitors, in a fashion consistent with the high standards set by the Board of Directors of Ducks Unlimited, Inc.

### **Standard of Conduct**

As a Standard of Conduct for employees of Ducks Unlimited, employees will not be permitted to possess, consume, or distribute drugs, controlled substances or abuse alcohol in the workplace or report to work or perform their duties under the influence of alcohol or with drugs present in their system. To allow otherwise jeopardizes the safety of our fellow employees, our members, our facilities, and the communities which we rely upon for support. Any employee determined to be in violation of this policy or standard will be subject to disciplinary action, which may include termination, even for the first offense.

## **Drug and Alcohol Abuse Screening/Testing**

Ducks Unlimited recognizes that carefully selected tests and testing procedures have a proper role in any comprehensive substance abuse program, as do properly conducted searches of the effects, vehicles and persons of employees, contractors or visitors.

### **• Job Applicants**

As a condition of regular employment all applicants must complete a drug screen test. If test results are confirmed positive, the employment offer will be withdrawn.

### **• Current Employees**

The Company utilizes screening practices to identify employees who use illegal drugs or abuse alcohol. It is a condition of continued employment for all employees to submit to a drug screen test when:

- a. there is sufficient cause to believe an employee is under the influence of alcohol or has drugs present in their system; or,
- b. there is any mishap or accident involving an employee during business hours or while on Company business in which injury to individuals or damage to property occurs as a result of the impaired employee's involvement.

Failure to submit to required medical or physical examinations/tests is considered misconduct, and as such, grounds for disciplinary action, including termination.

## **General Procedures**

Any employee reporting for work visibly impaired is unable to properly perform required duties and will not be allowed to work. If, in the opinion of the employee's supervisor the employee is considered impaired, the employee will be transported by taxi or an alternative safe transportation mode to his/her home or a medical facility. **An impaired employee will not be allowed to operate or drive any vehicle during business hours or while on official Company business, or any vehicle rented, leased, owned or otherwise intended for Company use or business.**